

RAND

*Tools for 21st Century
Diplomacy*

*An Approach to Improved Information
and Communication Technology for
Romania's Foreign Affairs Ministry*

Executive Summary

Tora K. Bikson, Robert Anderson, Robert Hunter

Sponsored by the U.S. Trade and Development Agency

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

20030114 066

This report was funded by the U.S. Trade and Development Agency (TDA), an export promotion agency of the United States Government. The opinions, findings, conclusions, or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of TDA.



The U.S. Trade and Development Agency assists in the creation of jobs for Americans by helping U.S. companies pursue overseas business opportunities. Through the funding of feasibility studies, orientation visits, training grants, conferences, and various forms of technical assistance, TDA enables American businesses to become involved in the planning stages of infrastructure and industrial projects in middle-income and developing countries. By doing this, the agency provides American firms with market entry, exposure, and information, helping them establish a position in markets that are otherwise difficult to penetrate.

Mailing and Delivery Address: 1621 North Kent Street, Suite 200,
Arlington, VA 22209-2131 • **Phone:** 703-875-4357 • **Fax:** 703-875-4009
Web site: www.tda.gov • **email:** info@tda.gov

RAND

RAND is a nonprofit institution that helps improve policy and decision-making through research and analysis. RAND® is a registered trademark. RAND's publications do not necessarily reflect the opinions or policies of its research sponsors.

© Copyright 2002 RAND. All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

ISBN: 0-8330-3202-X

Published 2002 by RAND

1700 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138

1200 South Hayes Street, Arlington, VA 22202-5050

201 North Craig Street, Suite 202, Pittsburgh, PA 15213-1516

<http://www.rand.org>

RAND

Tools for 21st Century Diplomacy:

**An Approach to Improved Information
and Communication Technology
for Romania's Foreign Affairs Ministry**

Tora K. Bikson

Robert Anderson

Robert Hunter

2002

E X E C U T I V E S U M M A R Y

RAND *Europe*

The project was sponsored by the U.S. Trade and Development Agency with the Ministry of Foreign Affairs of Romania as the project client. This research was conducted jointly by RAND Europe and the International Security and Defense Policy Center of RAND's National Security Research Division (NSRD). NSRD conducts research and analysis for the Office of the Secretary of Defense, the Joint Staff, the Unified Commands, the defense agencies, the Department of the Navy, the U.S. intelligence community, allied foreign governments, and foundations.

RAND Europe is an independent think tank that serves the public interest by improving policymaking and finding public-private solutions to shared problems. Its work is objective and multidisciplinary. RAND Europe helps European governments, institutions, and firms with rigorous, impartial analysis of the hardest problems they face. By disseminating analyses and ideas, RAND Europe also informs public debate. RAND Europe is networked with other European organizations, including Solving International (France), Bohlin & Strömberg (Sweden), Abels and Grey (Germany), IABG (Germany), and leading universities. RAND Europe headquarters are in Leiden, The Netherlands. RAND Europe also has offices in Berlin, Germany, and Cambridge, the United Kingdom.

CONTENTS

Preface.....	v
Executive Summary.....	1
Acknowledgments	17

The Preface and Summary appearing in this publication have been excerpted from the report, *Tools for 21st Century Diplomacy: An Approach to Improved Information and Communication Technology for Romania's Foreign Affairs Ministry*, MR-1567-TDA, by Tora K. Bikson, Robert Anderson, and Robert Hunter.

To order the full document, other RAND documents, or to obtain additional information, contact Distribution Services: Telephone: (310) 451-7002; Fax: (310) 451-6915; Email: order@rand.org.

PREFACE

This report outlines an approach to information and communication technology modernization for Romania's Ministry of Foreign Affairs. As a preliminary needs assessment and feasibility study, it is intended to lay the foundation for future modernization stages, including the development of a detailed system design and subsequent system implementation.

The project was carried out over a five-month period, from January 15 to June 15, 2001, with support from the U.S. Trade and Development Agency. The Ministry of Foreign Affairs of Romania was the project client, with RAND acting as the contractor.

The study was housed within RAND/Europe's European Defense program of research, headed by Stuart Johnson. The program's mission is to provide high quality research and analysis on issues of importance to allies and partners of the United States. RAND is a private, nonprofit research institution, conducting policy research in the public interest.

EXECUTIVE SUMMARY

INTRODUCTION

Information gathering, analysis, interpretation, decision-making and dissemination — as well as the documentation of these actions — must be treated as critical business processes by government entities in the 21st century. According to a statement released by the United Nations Administrative Committee on Coordination during its fall 1996 session, communication and knowledge “represent the life blood of the emerging global information society and its attendant infrastructure.” Thus there is a concomitant “imperative to build human and technical capacities to enable societies to facilitate access to and make best use of the new multimedia resources.”

For Romania’s Ministry of Foreign Affairs (MFA), whose missions are both domestic and international, such an imperative is particularly compelling. Networked digital technologies offer the prospect of closer ties to Western democracies and are instrumental in Romania’s full integration in Euro-Atlantic institutions, with the potential to generate highly beneficial political and economic consequences.

With support from the U.S. Trade and Development Agency, RAND engaged in an effort with the Romanian

MFA to carry out a preliminary needs assessment and feasibility study for information and communication technology (ICT) modernization. The project set out to:

- review and analyze the MFA's evolving missions and objectives for the conduct of foreign affairs during the period ahead, with an emphasis on the near-term future;
- review and analyze the Ministry's current information and communication systems in relation to these missions and objectives;
- develop requirements for modernizing these technologies to enable them to support and enhance the Ministry's worldwide and domestic goals; and
- prepare specific ICT recommendations.

The project's overall goal was to provide a viable foundation for two subsequent efforts: (1) the development of a detailed system design and architecture plus a detailed implementation plan; and, upon approval of this plan, (2) the timely acquisition and deployment of modernized ICTs to help support the MFA's missions in an increasingly complex, dynamic, and interconnected international environment. This report describes RAND's first-phase steps toward that goal.

CONCEPTUAL FRAMEWORK AND STUDY METHODS

The project rests on a conceptual framework and research methods employed and elaborated in a range of prior RAND studies. A growing body of research, carried out both by RAND and by other institutions, has led to the general conclusion that successful implementation of new technologies in organizations is largely a function of three classes of factors, as follows.

- **Organizational context:** Here we include characteristics of the existing setting that are likely to affect its need for, and use of, new information and communication tools, along with characteristics of the broader institutional environment that potentially influence the adoption of more-advanced ICTs.
- **Technology:** In this category, we include features of the current technologies available to the organization, as well as the desired features of future technologies.
- **Implementation strategies:** Implementation strategies include all the steps, both symbolic and behavioral, between the time an organization first decides it should make use of new computer-based media to the time when these media become incorporated into the organization's day-to-day work practices.

Further, among these classes of factors, much prior research has found that implementation processes themselves in the long run outweigh both technology features and context characteristics in explaining organizations' successes with technological innovation. For this reason,

we give special attention to implementation strategy in the MFA modernization study.

Chiefly dependent on semi-structured interviews, RAND's project approach reflects the conceptual framework outlined above with respect to both its choice of participants and its information gathering orientation.

Participants

Participants providing primary data to the study were selected for interviews on the basis of their roles in the MFA and their potential relationships to future ICT modernization efforts. Within the MFA, interviews were scheduled with representatives of a range of user units with diverse missions (including those with diplomatic or trade-related functions as well as those responsible for core administration and management). These interviewees helped the project to develop an in-depth understanding of the organizational context and the kinds of tasks to be supported by the deployment of new technologies. Interviews were also scheduled with high-level Ministry officials and with representatives of other Romanian government entities to get a picture of the broader institutional environment within which the MFA operates.

To supplement their perspectives, we also interviewed representatives of technology providers in Bucharest, including Romanian companies and Romanian subsidiaries or partners of foreign companies, as well as representatives of a software industry association and an Internet service provider (ISP) association, to assess the likelihood that future calls for tender related to ICT modernization would have an adequate base of competent vendors on which to draw. Further, we held discussions with representatives of nongovernmental organizations (e.g., EU/PHARE, World

Bank, UNDP, US/AID) whose programs of funding in such areas as e-government, e-commerce, e-society, democratization, and the like might influence directions or priorities within the MFA's overall modernization efforts. More than 80 interviews were conducted.

Procedures

The three-member RAND project team included a senior political scientist (the project leader), a senior social scientist (responsible for most of the interviews) and a senior computer scientist (handling the project's main technical issues). Over a five-month period (mid-January to mid-June 2001) project researchers made working visits to Bucharest to gather data and to provide interim feedback on its findings to the MFA.

Interviews were typically planned to last for about an hour; however, where multiple participants were involved, two or more hours were sometimes scheduled. While giving attention to all three classes of factors expected to affect a successful transition to the new technology, the interviews focused on questions most closely related to participants' roles in relation to elements of the conceptual framework. In addition to interviews, the project gathered and made use of archival data, including organization charts, documents describing previous ICT modernization proposals and current system diagrams as well as information work samples from MFA user units and technology vendors' reports. We also observed users interacting with the MFA's current suite of computer based tools and saw several technology vendors' demonstrations.

MAJOR FINDINGS AND RECOMMENDATIONS

The major findings from the research are summarized here under the three chief components of the conceptual framework outlined above.

Organizational Context

The Ministry of Foreign Affairs is characterized by new, diverse, and complex mandates. Its actions can have profound international consequences, both diplomatically and economically.

Scanning the broader national environment suggests that growing attention is being paid to the role of ICTs throughout the Romanian government. Further, the other entities with which the MFA interacts (e.g., organizations in the international community) increasingly require and support ICT modernization in public institutions.

Chief findings concerning the MFA as an organizational context for ICT modernization include the following.

- Information and communication are core components of MFA's critical business processes.
- Information-intensive tasks are of two types:
 - many are varied in focus but supportable by highly generic software;¹ and
 - some are specific in focus and dependent on specialized applications and tools.

¹ We recommend that ICT modernization begin with support for these sorts of functions.

- Communication-intensive tasks have two kinds of partners:²
 - internal participants, in Bucharest or elsewhere, need to be served by the same internal email system and intranet/Web facilities; and
 - external participants, an open-ended group, should be available for interaction via Internet email and external Web sites.
- Communications need differing levels of security depending, for example, on whether they are informal,³ official, commercial, or secret.

The study therefore recommends, as a first priority, the creation of a digital culture that spans the Ministry and its work practices. Second, it is critical to provide an enabling infrastructure for all of the MFA's basic information and communication tasks.

Technology

"Digital divides" within the MFA today are illustrated by the following examples. Currently, computer:person ratios range from 1:1 to 0:1 across work units. Many computers lack both internal network and Internet access; and often, different units use different ISPs and have varied technical support arrangements.

Several factors contribute to the current constraints on connectivity. Presently, the MFA is distributed among several buildings in Bucharest, some of which are not fully

² Development of these communication capabilities should proceed concurrently.

³ We recommend starting with support for informal communications.

wired. Beyond its headquarters, the Ministry's internal communication partners, which comprise 131 foreign missions, are distributed worldwide. Additionally, external communication partners (e.g., EU, NATO) may impose special technical requirements. These factors underscore the need for the MFA to keep apprised of changing global ICT environments.

Major findings concerning enhancements of the MFA's current ICT status and its modernization include the following.

- The MFA needs a Metropolitan Area Network (MAN) linking all its Bucharest buildings, offices, and people. This effort should include as goals:
 - providing a computer for every user plus a standard software suite;
 - establishing standard individual email addresses plus Internet and MAN/intranet access for all (supporting the growth of a digital culture within the Ministry while enabling routine electronic exchange with external entities that are Internet-accessible); and
 - acquiring tools to support development access of high priority specialized applications on an incremental, modular basis.
- The MFA should do a Wide Area Network (WAN) pilot project linking headquarters with foreign missions. It should:
 - start with a small subset of key foreign offices (e.g., Brussels, Washington) where international connectivity would be available;

- introduce a virtual private network (VPN) that gives transparent access to internal ICT facilities and offers voice-over-IP (yielding potentially significant telecommunications cost savings while affording secure avenues for official information exchange with communication partners outside the reach of the headquarters MAN);
 - conduct special training with Bucharest-based and foreign office users; and
 - evaluate costs, benefits, other lessons learned for broadening the system's global reach.
- The MFA's networked ICTs should be both scalable and extensible, susceptible to evolution:
 - at any point in time, the network must be heterogeneous;
 - generic technologies will have to be compatible with future Romanian government plans for e-signatures, e-commerce, and other e-government applications; and
 - the infrastructure must permit introduction of new technologies as they emerge on the market.
- There are enough companies, both domestic and foreign, that are competent to provide the required technical systems, services, and support in Bucharest.

The study advises that the MFA prepare a Request for Information (RFI) and/or a Request for Proposals (RFP) to solicit responses from interested ICT provider firms. It is also recommended that the Ministry continue to make visible progress toward ICT modernization by such means as extending current LAN access and completing the new Web site.

Implementation

The MFA has made a go-ahead decision for ICT modernization, and the initial pieces of an implementation strategy are in place. An ICT project task force has been created, and there exists high-level interest and support among Ministry representatives and government officials. Technical progress is currently underway on key ICT objectives.

Chief findings concerning project implementation include the following.

- Future ICT implementation can be seen as having two main components:
 - (1) providing a basic infrastructure for digital work practices; and
 - (2) completing projects to improve specific critical business processes.
- Government funds or loan guarantees should be sought for the ICT foundation (part 1).
- Well-designed projects can attract targeted program funds from multilateral or bilateral donors (part 2), such as
 - UNDP
 - US/AID
 - WORLD BANK
 - EU

- The MFA's Informatics unit needs immediate capacity building, including:
 - more senior informatics professionals;
 - consolidation of technical support across the MFA;
 - higher status in the organizational structure; and
 - a single designated contact for gathering and exchanging ICT-related information.
- Technical human resource needs must be filled before implementation can move forward.
- The MFA should prepare a plan and schedule for action that:
 - specifies what will be in the initial ICT foundation (part 1) and anticipates priorities for special projects (part 2);
 - reflects these decisions in an RFI/RFP; and
 - treats this study as a foundation and outline for that plan.
- Users must be involved in implementation processes to:
 - test and evaluate generic tools;
 - help prioritize and design projects that involve specialized tools for specific business processes; and
 - develop policies and procedures to guide new digital work practices.

- **Coordination with other ministries' ICT efforts will be a critical success factor.**

The study therefore suggests that the MFA immediately acquire the needed human and financial resources to take the next implementation steps. Based on the above findings, we judge that beginning work on a strategic action plan for successful ICT modernization is a critical first step for the Ministry.

CONCLUSIONS

The common wisdom is that few problems can be solved by throwing money at them. The problem this report addresses is an exception to that general rule. Simply put, the MFA lacks sufficient hardware and connectivity on which to base improvements to its information and communication systems. This lack can be remedied with technologies presently available on the market, so long as financing can be arranged. Without access to contemporary technologies, it is hard to envision any significant performance improvements in the MFA's information- and communication-intensive missions. However, a well-designed ICT infrastructure will serve as the base on which powerful business solutions can successively be built as implementation progresses.

If funding were available, human resource limitations would not constitute a major implementation obstacle. Professional MFA employees do not show reluctance to use new computer-based media. Rather, across varied divisions employees stressed the need for more and better on-line tools. Moreover, the senior professionals in the Informatics Division are well trained and have a strong command of English as well as strong technical skills. Given the funds, it should be possible to increase the size of the technical staff to the level that would be required to maintain a larger and more advanced information and communication system.

Further, during the course of our study, we visited a number of key software, network, and system integration companies within Bucharest, both domestic and foreign. We were impressed by these companies' professionalism, knowledge, and ties to major suppliers of hardware, software, and telecommunications (e.g., Microsoft, Compaq,

Cisco, Omnilogic BGS, Global One, KPNQwest, and various ISPs). It is clear to us that there is abundant talent within the private sector in Romania to supply all the capabilities (hardware, software, systems integration, documentation, and education and training) required by our recommendations.

We should underscore that the first-phase RAND effort reported here has raised hopes — it seems to be attracting a notable amount of professional commitment and energy. People in the Ministry think of advanced ICT as helping their effort to build links to Western governments and economies. However, a 1998 modernization effort ended in a well-done report with no follow-up action; it is thus extremely important that the current project lead rapidly to concrete, positive action and achievement, both to show results and to demonstrate to all involved that their efforts can and will pay off. So even before all the pieces of a solution to the ICT modernization problem can be worked out, this first-phase project should lead to some viable action items — steps that can be taken by the Ministry in the near term that would make a positive difference. The bulleted major findings under **Organizational Context** above, and the initial actions listed under **Technology** above — combined with the plan and schedule for action called for under **Implementation** — can form the basis for those near-term actions.

Finally, as a geographically distributed organization with worldwide missions and as a leading agency for Romania's integration in Euro-Atlantic institutions, the Ministry of Foreign Affairs can best meet its goals and objectives by employing fully the tools of 21st century diplomacy. Indeed, this is indispensable. Moreover, current developments in the Romanian government (e.g., a new Ministry for Communication and Information Technology, a parlia-

mentary committee on e-legislation, a president who has made information society advancement one of his top three priorities), together with ICT-related programs and initiatives supported by major nongovernmental organizations with representation in Romania, are strikingly convergent indicators that this is the right time for the MFA to move forward aggressively on its modernization agenda. The foregoing recommendations are intended to serve that end.

ACKNOWLEDGMENTS

We are indebted to many people for their cooperation and assistance with this study. At the outset we want to acknowledge the encouragement and support of Romanian Foreign Affairs Minister Mircea Geoana, without whose insights and enthusiasm for advanced digital tools this project would not have been realized.

We are especially grateful to the Ministry's former Director for Strategic Planning and Analysis, Raduta Matache, for her continuing guidance, thoughtful suggestions, and constructive feedback throughout the course of the study. Her leadership was vital to the project's success. Very special thanks go as well to Savina Teodorescu and Paul Voicu, senior professionals in the Ministry's Informatics Division, for their invaluable help; they coordinated many aspects of our working visits, provided us with background documents, spent many hours briefing us on the Ministry's current uses of computerized technologies, advised us on future needs and plans, and contributed in innumerable other ways to the substance of our work.

We wish also to thank the many other divisions and departments of the Ministry that took part in the study. Their representatives made time available to talk with the project

team, candidly sharing their knowledge and experience. We learned a great deal from them.

In addition, the project benefited significantly from working visits to other ministries and government entities, to multilateral organizations, and to private-sector firms and associations located in Bucharest. These discussions helped us develop a clearer picture of the broader context within which the Ministry of Foreign Affairs carries out its information- and communication-based missions.

Last, we should acknowledge the contribution of our RAND colleague, Maarten Botterman. His review and critique of an earlier draft helped us considerably in preparing the final version of this report.